Roll. No:

(An Autonomous Institute Affiliated to AKTU, Lucknow)
MBA (Integrated)
SEM: IV - THEORY EXAMINATION (2024 - 2025)
Subject: Data Base Management

Time: 2.5 Hours   **Max. Marks: 60**

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A   15

1. Attempt all parts:-

1-a.   In which one of the following, the multiple lower entities are grouped (or combined) together to form a single higher-level entity?(CO1, K2)   1

    (a)   Aggregation

    (b)   Generalization

    (c)   Specialization

    (d)   All of the above

1-b.   Which of the following is the correct order of a SQL statement?(CO2, K3)   1

    (a)   SELECT, GROUP BY, WHERE, HAVING

    (b)   SELECT, WHERE, GROUP BY, HAVING

    (c)   SELECT, HAVING, WHERE, GROUP BY

    (d)   SELECT, WHERE, HAVING, GROUP BY

1-c.   5NF is designed to cope with : (CO3,K2)   1

    (a)   Transitive dependency

    (b)   Join dependency

    (c)   Multi valued dependency

    (d)   None of these

1-d.   Which property of transactions is required by concurrent transactions? (CO4,K2)   1

    (a)   Atomicity

    (b)   Durability

      (c)   Isolation

      (d)   All of the mentioned

1-e.	If a transaction has obtained a _____ lock, it can both read and write on the item.(CO5,K2)	1

      (a)   Shared mode

      (b)   Exclusive mode

      (c)   Read only mode

      (d)   Write only mode

2. Attempt all parts:-

2.a.	Define instance and schema? (CO1, K1)	2
2.b.	What is a "foreign key" in the Relational Model?(CO2, K1)	2
2.c.	Define Multi Valued Dependency. (CO3, K1)	2
2.d.	Define cascadeless schedule.(CO4, K1)	2
2.e.	Define Timestamp.(CO5, K1)	2

SECTION-B   15

3. Answer any <u>three</u> of the following:-

3-a.	Explain the difference between DDL and DML commands.(CO1, K3)	5
3-b.	What are the advantages and disadvantages of a hierarchical model?(CO2, K2)	5
3.c.	Explain the differences between 3rd Normal Form and BCNF.(CO3, K3)	5
3.d.	Explain the difference between inner join and outer join with suitable examples.(CO4, K3)	5
3.e.	List and explain various issues when transactions are running concurrently.(CO5, K2)	5

SECTION-C   30

4. Answer any <u>one</u> of the following:-

4-a.	How is DBMS better than file system? (CO1, K3)	6
4-b.	Discuss referential integrity constraints with suitable examples.(CO1, K1)	6

5. Answer any <u>one</u> of the following:-

5-a.	Discuss the importance of data model in DBMS. (CO2, K1)	6
5-b.	What is data abstraction? How is physical level abstraction different from logical level abstraction?(CO2, K3)	6

6. Answer any <u>one</u> of the following:-

6-a.	How would you find the closure of a set of attributes. Explain it with example. (CO3, K2)	6
6-b.	Construct an ER diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted. Map your ER diagram to the relational model. (CO3, K3)	6

7. Answer any <u>one</u> of the following:-

| 7-a. | Discuss selection and projection operations in relational algebra with examples. (CO4, K2) | 6 |
| 7-b. | Explain tuple relational calculus. How is it different from domain relational calculus.(CO4, K3) | 6 |

8. Answer any <u>one</u> of the following:-

| 8-a. | Describe the two phase locking protocol with an example. Also elaborate its characteristics?(CO5, K2) | 6 |
| 8-b. | What is a log file. Write the steps in Log based recovery with a suitable example.(CO5, K2) | 6 |